

# [RETRIEVABLE SUBSURFACE NUCLEAR LOGGING SYSTEM]

## Abstract

Systems and methods utilizing an elongated sub body adapted to receive a run-in tool within its inner bore. The run-in tool including nuclear sources and sensors to provide nuclear formation evaluation while tripping. The nuclear sources and sensors align with partially or fully penetrating windows in the sub to allow for measurements through the sub. The sub wall includes an inner passage adapted to direct radiation energy emitted from within the sub back to the sub bore to align the run-in tool within the sub. The sub also includes fully penetrating openings in its walls to provide through-tubular signal passage. Hydraulic isolation at the sub openings is provided by pressure barrier means. A run-in tool configuration also includes antennas, neutron, and gamma-ray sources/sensors to provide a retrievable triple combo system.